PATHOLOGY AND BACTERIOLOGY.

UNDER THE CHARGE OF

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Investigations on Striated Muscle with Special Reference to Fatty Infiltration.—WALBAUM (*Virchow's Archiv.*, 1899, clviii., 170) concludes that fatty degeneration of striated muscle is uncommon and that fatty infiltration is very frequently met with.

As far as the condition of the muscles in rhachitis is concerned he finds that the older writers described microscopical conditions which they considered to be characteristic of this disease, while the later writers deny the existence of any such lesions. He gives a good bibliography.

He examined in all 119 cases of all kinds as they came to autopsy. Teased preparations were examined in all cases. He found that physiological saline solution alters the structure and volume of the fibres, and that ordinary tap water gives better results. Ordinarily hardened specimens were unsatisfactory, and specimens hardened in 10 per cent. formalin and stained with Sudan III. did not show as much fat as the fresh preparations used as controls.

In rhachitis the muscles showed no change macroscopically or microscopically. Between the flexors and extensors of the extremities no differences were observable, and he concludes that the deformities cannot be explained by changes in the muscles.

The fat in the muscle fibres was arranged in longitudinal rows. Cloudy swelling was present in only one case. The cross striation determined the size of the fat droplets. The presence of fat seemed to bear no relation to the state of nutrition, to the duration of the disease, or to the temperature. He could discover no factor which determined its presence.

Specimens were taken from the extremities, the thoracic muscles, the diaphragm, and the eye, for comparison. The levator palpebræ was most frequently fatty, then followed the other eye muscles; age seemed to have no influence, except that very little fat was found in cases under one year.

In association with the presence of fat there was no functional disturbance, no decrease in size, or apparent degeneration of the fibres, no destruction of or decrease in the number of nuclei, and no interstitial changes. Excluding the heart and diaphragm, the most active muscles, such as the levator palpebræ, contained most fat. The fat appears to be stored up in the tissues.

A New Method of Cultivating the Tubercle Bacillus.—W. HESSE (*Zeitschr. für Hygiene und Infectionskrankheiten*, 1899, xxxi.) has conducted experiments with plain agar-agar containing "Nährstoff Heyden" in place of peptone. He has demonstrated a growth of the tubercle bacillus within a period of five to six hours. In cultures from tuberculous sputa the growth is sufficient for the demonstration of the tubercle bacilli in smears before the growth of other bacteria has masked the conditions. The growth in this short period is shown by the fact that the bacilli in smears from the culture have twice the dimensions of those in smears from the sputum.

He recommends the following technique: Pour 20 c.c. of the medium into a Petri dish, capacity 9.5 cm. in diameter. After coagulation invert the dish, keeping it in this position in the subsequent manipulations. The sputum should be collected in a sterile glass dish. With a platinum-wire loop pick up a drop of the purulent mucus and rub it in a circle over the surface of the medium near the border of the dish. From this circle distribute twenty to thirty flakes of the mucus over the surface of the medium. Place the culture in the thermostat for twelve to twenty-four hours. Sterilize a cover-glass in the flame of a Bunsen burner and place it over the mouth of an open reagent bottle. Remove the cover of the Petri dish and bring one of the flakes of mucus in contact with the cover-glass. Remove the latter by introducing a platinum wire loop under one edge, tipping the dish toward that edge. The cover-glass will then remain hanging by the opposite edge, and may be removed with forceps. If the flake of mucus does not attach itself to the cover-glass touch the latter with a hot platinum-wire loop at the point where it is in contact with the mucus, in order to melt the medium slightly. Cultures should be kept in a moist chamber.

He gives the composition of the medium as follows:

Nährstoff Heyden	5 grammes.
Salt	5 “
Glycerin	30 “
Agar-agar	10 “
Normal sod. hydrate sol.	5 c.c.
Distilled water	1000 c.c.

The “Nährstoff Heyden” should be dissolved in a little water. After the other ingredients have boiled for about two hours it should be added and the boiling continued fifteen minutes longer. Filter.

Hesse considers the method superior to the inoculation test in many cases.

If the method will enable one easily to find the tubercle bacillus in the “purulent mucus” of tuberculous sputa, in which no caseous masses are present, it will be of much practical value.

Termination of Pneumonia in Induration.—Ribbert (*Virchow's Archiv.*, 1899, Band clvi. p. 164) notes that in the recent studies upon organizing pneumonia, the place of origin of the vascular connective tissue that fills the air-spaces has been much discussed. Three views are held: that it originates from (1) the alveolar wall; (2) the subpleural and interlobular tissue; (3) the bronchioles and smaller bronchi. The first is the oldest and is probably most commonly accepted. v. Kahlden and Borrmann are its latest supporters. Ribbert opposes it. He shows that the organization begins as an outgrowth from the connective tissue in the walls of the smallest bronchi and bronchioles, especially the latter, and grows peripherally into the alveoli. So long as the organization is not complete, the formation of new tissue is always furthest advanced in the bronchioles and bronchi; sometimes there is no connective tissue in the alveoli. He does not deny that when there is marked distention of the alveoli with fibrin the alveolar wall might possibly be the source of the connective tissue, but he has never observed it. If one is to determine whether the organization begins by outgrowths from the alveoli, only the early stages must be selected for study. A connection of the organizing exudate with the alveolar wall in the later stages proves nothing. The secondary union is very extensive. The alveolar spaces may be entirely obliterated.

Hansemann has shown that there are fine openings in the normal alveolar wall. In pneumonia, fibrin threads are found passing through these and connecting the fibrin meshwork in adjacent alveoli. The vessels and cells that replace the fibrin-plugs follow the course of the fibrin threads through the alveolar wall. In ordinary microscopical preparations they appear to originate from the alveolar wall, which they really only perforate. Ribbert employed injected preparations and his modification of Mallory's phosphomolybdic acid hæmatoxylin stain.

The numerous strands connecting the alveolar plugs could be seen passing through the wall above and below the vessels and at right angles to them. A genetic connection could be readily excluded. Doubtless the proliferating cells cause the pores to dilate. Hence, quite a large strand may pass from one alveolus to another.

The masses of connective tissue in the bronchioles contained many vessels. They were often of large size and ran longitudinally. The alveolar plugs, almost without exception, contained no vessels.

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